

Storm Water and Combined Overflow Monitoring with YSI Instruments



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YSI Multiparameter Monitoring
Application Note A525-02

Baseline Monitoring on the White River

The city of Indianapolis, Indiana has been monitoring surface water quality of the White River and its tributaries since 1991. Each year the Indianapolis Office of Environmental Services (OES) collects nearly 6,000 samples from 27 locations. Two specialized programs, Continuous Dissolved Oxygen and Critical DO, are designed to collect data during periods when the potential exists for dissolved oxygen problems.

YSI multiparameter monitoring equipment, including a couple YSI sondes, is currently deployed at seven sites on the White River and its tributaries, where monitoring dissolved oxygen levels is the focus. Six sondes are mounted from bridges and one is mounted on a buoy in the White River. Temperature, conductivity, pH, and dissolved oxygen data are collected every 15 minutes, then transmitted via cellular telemetry to the OES office.

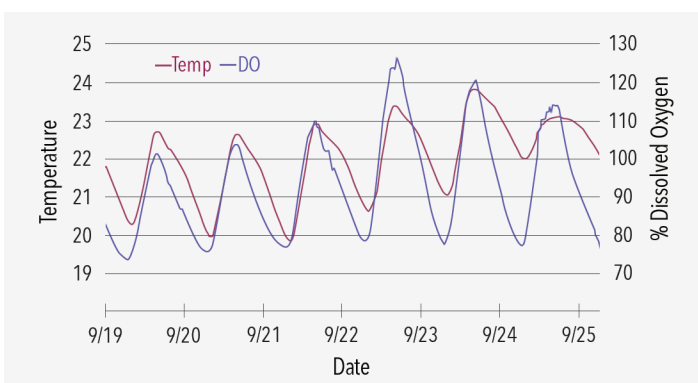
The data are used as a baseline to measure the success of programs including the Storm Water Management and Combined Sewer Overflow (CSO) Long Term Control plan as a check against the city's water quality modeling efforts. Low oxygen levels can lead to fish kills—which have already been reported at a few locations on the river. As improvements in the system are made, dissolved oxygen levels in the White River and its tributaries should improve. This will reduce the potential for fish kills and other environmental effects caused by critical dissolved oxygen levels in the streams.



Deployment site for Indianapolis OES. The sonde is deployed in a long PVC tube for protection. The solar panel and telemetry system can be seen at bridge level.

"The YSI equipment performance has been excellent. We were able to upgrade some of our locations to real-time data transmission and we have not had a single problem. We're collecting some very valuable data," comments Tom White, Senior Project Manager for the Indianapolis Office of Environmental Services.

Data collected from the monitoring sites are not currently posted online, but plans are in place to make data available on the internet.



Preliminary DO and temperature data collected from an Indianapolis OES site.

Monitoring CSO & Storm Water Effects Across Central Ohio
Monitoring CSO & Storm Water Effects Across Central Ohio Five waterways with 34 sites in the Columbus, Ohio area are being monitored for storm water and CSO effects using YSI multiparameter monitoring equipment. Data collected from many YSI 6600EDS and 6920 sondes deployed at these sites will be used to characterize the water quality and calibrate a water quality model.

YSI sondes are deployed either floating in the channel or fixed to a bridge or pier. Readings are taken every 15 minutes *continued*

Far Right: Buoy deployment site for Central Ohio study.

Right: Sonde with level is deployed in a tube for protection.

Below: Crews use YSI equipment for spot sampling.



and include dissolved oxygen, temperature, conductivity, pH, chlorophyll, turbidity, level, and rhodamine – dissolved oxygen being the focus of the study. YSI 556 handheld units are used to spot-check the deployed sondes when crews visit the sites.

Initially, crews had trouble with super-saturated dissolved oxygen readings. Kathleen Gordon, Engineer with Malcolm Pirnie, Incorporated, elaborates, "With help from YSI we have changed our calibration method and have been getting better results this season. Overall the equipment has been reliable."

Data from this study will not be posted to the web, however it will be made available as part of a CSO Long Term Control Plan.

For additional information, please contact:

YSI, a Xylem brand

Tel.+1 937 767 7241 | US 800 897 4151

info@ysi.com | YSI.com